

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listings of claims in this application.

1. (Currently Amended) A transpiration cooled heat sink comprising:

a heat sink base structure, said heat sink base structure having a coolant inlet for receiving a coolant and a coolant outlet for distributing a coolant, wherein said heat sink base structure defines at least one coolant channel disposed so as to be communicated with said coolant inlet and said coolant outlet; and

a coolant distribution structure, wherein said coolant distribution structure defines at least one distribution cavity and includes at least one distribution inlet communicated with said distribution cavity and wherein said coolant distribution structure is disposed relative to said heat sink base structure such that said distribution inlet is communicated with said coolant outlet;

wherein said coolant distribution structure is constructed of a porous material, said coolant entering said coolant inlet and exiting said heat sink to ambient surroundings through pores of said porous material.

2. (Canceled)

3. (Canceled)

4. (Original) A transpiration cooled heat sink according to claim 1, wherein said heat sink base is constructed from copper.

5. (Currently Amended) A transpiration cooled heat sink comprising:

a heat sink base structure, said heat sink base structure having a coolant inlet for receiving a coolant and a coolant outlet, wherein said heat sink base structure defines at least one coolant channel disposed so as to be communicated with said coolant inlet and said coolant outlet; and

a coolant distribution structure, wherein said coolant distribution structure defines at least one distribution cavity and includes at least one distribution inlet communicated with said distribution cavity and wherein said coolant distribution structure is disposed relative to said heat sink base structure such that said distribution inlet is communicated with said coolant outlet;

further comprising a distribution outlet communicated with said distribution cavity, a heat transfer surface and a module attachment structure, wherein said module attachment structure defines a plurality of module channels and wherein said heat transfer surface is nonmovably associated with said module attachment structure, wherein said heat transfer surface is constructed of porous material, said coolant exiting said heat transfer surface to ambient surroundings.

6. (Original) A transpiration cooled heat sink according to claim 5, wherein said heat transfer surface is disposed relative to said module attachment structure so as to be communicated with said distribution outlet and said plurality of module channels.

7. (Original) A transpiration cooled heat sink according to claim 5, further comprising a coolant distribution device disposed within said plurality of module channels so as to be communicated with said distribution outlet and said heat transfer surface.

8. (Original) A transpiration cooled heat sink according to claim 7, wherein said coolant distribution device is constructed of a wicking material.

9. (Original) A transpiration cooled heat sink according to claim 7, wherein said coolant distribution device is cotton string.

10. (Canceled).

11. (Original) A transpiration cooled heat sink according to claim 5, wherein said heat transfer surface is constructed of copper.

12. (Original) A transpiration cooled heat sink according to claim 5, wherein said module attachment structure is constructed from copper.

13. – 23. (Canceled)

24. (Currently Amended) A transpiration cooled heat sink comprising:
a heat sink base structure, said heat sink base structure having a coolant inlet for receiving a coolant, wherein said heat sink base structure defines at least one coolant channel disposed so as to be communicated with said coolant inlet; and

a coolant distribution structure, wherein said coolant distribution structure defines at least one distribution cavity and includes at least one distribution inlet communicated with said distribution cavity and wherein said coolant distribution structure is disposed relative to said heat sink base structure such that said distribution inlet is communicated with said coolant inlet;

further comprising a distribution outlet communicated with said distribution cavity, a heat transfer surface and a module attachment structure, wherein said module attachment structure defines a plurality of module channels and wherein said heat transfer surface is a porous material, said coolant exiting said module channels to ambient surroundings through pores of said heat transfer surface.

25. (Previously Presented) A transpiration cooled heat sink according to claim 24, wherein said heat transfer surface is disposed relative to said module attachment structure so as to be communicated with said distribution outlet and said plurality of module channels.

26. (Previously Presented) A transpiration cooled heat sink according to claim 5, further comprising a coolant distribution device disposed within said plurality of module channels so as to be communicated with said distribution outlet and said heat transfer surface.

27. (Previously Presented) A transpiration cooled heat sink according to claim 26, wherein said coolant distribution device is constructed of a wicking material.

28. (Previously Presented) A transpiration cooled heat sink according to claim 27, wherein said coolant distribution device is cotton string.

29. (Previously Presented) A transpiration cooled heat sink according to claim 24, wherein said heat transfer surface is constructed of porous material.

30. (Previously Presented) A transpiration cooled heat sink according to claim 24, wherein said heat transfer surface is constructed of copper.

31. (New) A transpiration cooled heat sink according to claim 1, wherein said coolant distribution structure includes fins constructed of a porous material.